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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,309	12/30/1999	ANGELA L. CHIU	1999-C	7641

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EXAMINER

NGUYEN, VAN KIM T

ART UNIT	PAPER NUMBER
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2661

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/476,309

Applicant(s)

CHIU ET AL.

Examiner

Van Kim T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on December 30, 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 7-12, 19, 24-26, 28, 47, and 51-55 are rejected under 35

U.S.C. 102(e) as being anticipated by Elwalid et al (US 6,353,616).

Regarding claims 1, 7-12, 19, 24-26, 47, and 51-55, as shown in Figs. 1-7, the steps of assigning a set of packets to be transmitted across a pathway comprising at least one link path in a network; determining whether the first set of packets can be sent at a transmission rate corresponding to a class subscription along the at least one link path; allocating sufficient bandwidth; and executing a class-based scheduling algorithm for the transmission of the packets, are anticipated by the steps of receiving, classifying, and scheduled transmission of packets in steps 202, 204, 206, 208, 210, 212, 214; col. 4: line 45 – col. 5: line 64). Elwalid also discloses assigning weight provisions to the first set of packets (301, 310, 311; col. 9: lines 30-49); and configuring routing parameters along the at least one link path in the network, according to implementation of the scheduling

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algorithm and the weight assignment provisions for the first set of packets (302, 303, 304, 305; col. 9: line 50 – col. 10: line 16).

Regarding claims 2 and 24, Elwalid also discloses allocating buffer space (222; col. 4: lines 51-57) to the service classes. Though Elwalid does not explicitly call for allocating the buffer space so that transmission of the first set of packets of the first service class produces a near-zero loss packet delay, it is inherent for guaranteed services, delay is not tolerated and thus transmitting first class (delay sensitive) packets would demand/produce near-zero loss packet delay.

Regarding claims 3 and 23, Elwalid also discloses determining a cap (upper bound) on a total peak rate of the first service class on the at least one link path in the network (col. 12: lines 39-41).

Regarding claims 5, 28, and 49, Elwalid also discloses the class-based-scheduling algorithm for the transmission of the first set of packets comprises a weighted round robin scheme (col. 6: lines 58-62 and col. 9: lines 19-55).

Regarding claims 22 and 45-46, it is anticipated the transmission traffic comprising a predetermined traffic mix between sets of packets of first service class, second service class, and third service class (steps 302-305), and the allocation of sufficient bandwidth for a set of packets does not cause transmission performance deterioration of another set of packets (col. 12: lines 41-51).

Regarding claim 32, Elwalid also discloses the allocation of bandwidth for the second service class is accomplished by using a FIFO scheme (col. 11: lines 21-26 and 55-67).

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Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-21, 39-40, and 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid et al (US 6,353,616), as applied to claims 1, 19, and 47 above

Regarding claims 20-21, though Elwalid does not explicitly determining a time average packet loss ratios and a long time average packet loss ratios for the first, the second and the third sets of packets, but since Elwalid call for monitoring link utilization, such as number of message received, average packet length, average time in the queue, it would have been obvious to one of ordinary skill in the art at the time the invention was made to monitoring the time average packet loss ratio or the long time average loss ratio, motivated by the need to know transmission performance of the network in order to optimize the network traffic.

Regarding claims 39-40 and 43-44, though Elwalid does not explicitly disclose subscribed rate for the first service class or second service class is either less than or equals a predetermined subscribed rate, however, as it is well known in the art, a subscriber can elect to subscribe to any rate that provide a best fit for his/her communication needs, by choosing an appropriate service class which could be either less than or equal to a predetermined subscribed rate.

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3. Claims 4, 6, 13, 27, 29-30, 48, 50, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid et al (US 6,353,616), as applied to claims 1, 19, and 47 above, in view of Benmohamed et al (US 6,240,463).

Elwalid discloses all the recited limitations, except Elwalid does not explicitly call for the class-based-scheduling algorithm for the transmission of packets comprising a weighted fair queuing scheme; and dropping packets according to a weighted random early discard scheme when the network is congested.

Regarding claims 4, 27, and 48, as shown in Figures 1-4, Benmohamed teaches the class-based-scheduling algorithm for the transmission of packets comprising a weighted fair queuing scheme (col. 3: lines 43-65; col. 5: line 32 – col. 14: line 64).

Regarding claims 6, 13, 29-30, 50, and 56, as shown in Figures 1-7, Benmohamed also teaches randomly dropping packets according to a weighted random early discard scheme when the network is congested (col. 3: lines 43-65; col. 5: line 32 – col. 14: line 64).

Since it is highly desirable to improve network performance, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employing Benmohamed's weighted fair queuing schemes and weighted random early discard scheme in Elwalid's communication system, motivated by the need to optimizing the network performance.

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4. Claims 14-18, 26, 33-38, and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Elwalid et al (US 6,353,616), as applied to claims 1 and 19 above, in view of Mo et al (US 6,693,909).

Elwalid discloses all the recited limitations, except the service class comprises a point-to-point, unidirectional service; or a point-to-point, bi-directional service comprising asymmetric bandwidths in each direction; or a point-to multipoint, a unidirectional service with a fixed aggregate rate of packet transmission; a multipoint-to multipoint, bi-directional service.

Elwalid is also silent on teaching the first service class having a higher transmission priority than the second service class; and dropping the first set of packets at a lower probability than dropping the second set of packets.

As shown in Figures 1-7, regarding claims 14-18, 34-38, and 41-42, Mo teaches the service class comprises a point-to-point, unidirectional service; or a point-to-point, bi-directional service comprising asymmetric bandwidths in each direction; or a point-to multipoint, a unidirectional service with a fixed aggregate rate of packet transmission; a multipoint-to multipoint, bi-directional service (col. 5: line 16 – col. 6: line 3).

Regarding claims 26, Mo also teaches the first service class is characterized by having a higher transmission priority than the second service class (col. 7: lines 1-24).

Regarding claim 33, Mo also teaches dropping the first set of packets at a lower probability than dropping the second set of packets (col. 2: lines 55-61; col. 4: lines 49-61; and col. 7: lines 16-34).

Since it is highly desirable to improve network performance, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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employing Mo's method of transporting traffic packets in Elwalid's communication system, motivated by the need to optimizing the network performance.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Mitra et al (US 6,721,270); Aukia et al (US 6,594,268); Hughes et al (US 6,526,060); Fowler et al (US 6,504,819); Ma (US 6,493,317); Lin et al (US 6,453,068); Yin et al (US 6,442,138); Kataria et al (US 6,385,172); Giroux et al (US 6,317,416); and Modali et al (US 2003/0112814).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Van Kim T. Nguyen whose telephone number is 571-272-3073. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye, can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

vkn



KENNETH VANDERPUYE
PRIMARY EXAMINER